

WHAT IS CLAIMED:

1. A riding type vehicle comprising:

an automatic transmission, a clutch actuator and a shift actuator configured to execute a shift change by the automatic transmission, a multiplate clutch the operation of which is controlled by the clutch actuator; the multiplate clutch comprising bias member configured to enlarge a partial clutch engagement region of the multiplate clutch; and wherein in the shift change, of both the clutch actuator and the shift actuator are configured to operate in an overlapping manner.

2. The riding type vehicle according to Claim 1, wherein the bias member is a coil spring.

3. The riding type vehicle according to Claim 1, wherein the bias member is configured to enlarge the partial clutch engagement region by reducing a rigidity of the multiplate clutch.

4. The riding type vehicle according to Claim 1 wherein the clutch actuator is connected to a control apparatus;

wherein the control apparatus is configured to control the clutch from a first state of starting to transmit a drive force on a side of an engine by transmitting an operating force to the clutch by way of an operating force transmitter mechanism to a second state of starting to rotate the clutch in synchronism with the side of the engine by making a stroke by a predetermined amount by the clutch actuator; and

wherein the bias member and multiplate clutch is configured such that when a temperature of the clutch is changed, a first range between a stroke position on a low temperature side and a stroke position on a high temperature side in the first state and a second range between a stroke position on a low temperature side and a stroke position on a high temperature side in the second state are separated from each other.

5. The riding type vehicle according to Claim 1, wherein the clutch actuator is

connected to a control apparatus;

wherein the control apparatus is configured to control the clutch from a first state of starting to transmit a drive force on a side of an engine to a second state of starting to rotate the clutch in synchronism with a side of the engine by transmitting an operating force to the clutch by way of an operating force transmitter mechanism by making a stroke by a predetermined amount by the clutch actuator; and

wherein the bias device and the multiplate clutch is configured such that when the clutch is worn, a first range between a stroke position on a side before wearing the clutch and a stroke position on a side after wearing the clutch in the first state and a second range between a stroke position on a side before wearing the clutch and a stroke position on a side after wearing the clutch in the second state are separated from each other.

6. The riding type vehicle according to Claim 1, wherein when the clutch actuator and the shift actuator are overlapping, a shift change operation of the shift actuator is executed in a partial clutch engagement region produced by controlling the clutch actuator.

7. The riding type vehicle according to Claim 6, wherein a timing of starting the partial clutch engagement region and the shift change operation of the shift actuator are controlled to be synchronized.

8. The riding type vehicle according to Claim 1, wherein the multiplate clutch comprises:

respective clutch disks arranged on a same axis center, configured to rotate relative to each other around the axis center, configured to be brought into contact with each other and separated from each other in an axial direction of the axis center and cooperatively connected to a drive side and a driven side;

a stopper for hampering the two clutch disks brought into contact with each other from moving in one direction of the axial direction to a predetermined position or further;

a clutch spring configured to exert an urge force to the two clutch disks in the one

direction to bring to the two clutch disks movements of which are hampered by the stopper into contact with each other; and

bias force release device configured to enable release of the urge force of the clutch spring exerted to the two clutch disks by inputting an operating force from outside;

wherein the clutch actuator is an actuator for exerting the operating force to the bias force releasing device; and

wherein the bias device configured to enlarge the partial clutch engagement region is a transmitter torque restriction spring configured to urge the two clutch disks in other direction of the axial direction to be brought into contact with each other.

9. The riding type vehicle according to Claim 1, wherein the clutch actuator is an actuator configured to control the clutch from a first state of starting to transmit a drive force on a side of an engine to a second state of starting to rotate the clutch in synchronism with the side of the engine by transmitting an operating force to the clutch by way of an operating force transmitting mechanism by making a stroke of a predetermined amount; and

wherein the clutch actuator and the operating force transmitting mechanism are characterized in being arranged at outside of the engine.

10. The riding type vehicle according to Claim 8, wherein the actuator is an electric motor.

11. The riding type vehicle according to Claim 1, wherein in that the clutch actuator is disposed at inside of the engine of the riding type vehicle.

12. The riding type vehicle according to Claim 8, wherein in that the operating force transmitter mechanism is provided with a first connecting portion provided on a side of the clutch actuator and a second connecting portion provided on a side of the clutch movably in separating and approaching directions, provided with a first bias member configured to urge the two first and second connecting portions in the separating direction, and when the clutch is disconnected, the clutch is configured to be disconnected by making the two first and second

connecting portions approach each other against an urge force of the first bias member by driving the clutch actuator.

13. A riding type vehicle comprising: an automatic transmission configured to execute a shift change by a clutch actuator and a shift actuator; wherein the clutch actuator is connected with a control apparatus; wherein the control apparatus is configured to control a clutch from a first state of starting to transmit a drive force on a side of an engine to a second state of starting to rotate the clutch in synchronism with the side of the engine by transmitting an operating force to the clutch by way of an operating force transmitter mechanism by making a stroke by a predetermined amount by the clutch actuator; and

a bias member within the clutch configured such that when a temperature of the clutch is changed, a first range between a stroke position on a low temperature side and a stroke position on a high temperature side in the first state and a second range between a stroke position on a low temperature side and a stroke position on a high temperature side in the second state are separated from each other.

14. A riding type vehicle comprising: an automatic transmission configured to execute a shift change by a clutch actuator and a shift actuator;

wherein the clutch actuator is connected with a control apparatus;

wherein the control apparatus is configured to control a multiplate clutch from a first state of starting to transmit a drive force on a side of an engine to a second state of starting to rotate the clutch in synchronism with the side of the engine by transmitting an operating force to the clutch by way of an operating force transmitter mechanism by making a stroke by a predetermined amount by the clutch actuator; and

a bias member for the multiplate clutch configured such that when the clutch is worn, a first range between a stroke position on a side before wearing the clutch and a stroke position on a side after wearing the clutch in the first state and a second range between a stroke position on a side before wearing the clutch and a stroke position on a side after wearing the clutch in

the second state are separated from each other.

15. The riding type vehicle according to Claim 1;

wherein the riding type vehicle is a motor cycle; and

wherein the clutch actuator and the shift actuator are configured controlled by an electronic control device.

16. The riding type vehicle according to Claim 1, wherein the automatic transmission is configured to execute the shift change by an instruction of a driver, or an instruction by an electronic control apparatus electrically connected to the clutch actuator the shift actuator.

17. The riding type vehicle according to Claim 1, wherein the automatic transmission is configured to execute the shift change through an electronic control apparatus electrically connected to the clutch actuator and wherein the electronic control apparatus is electrically connected with a sensor for detecting a situation of the riding type vehicle;

wherein the instruction by the electronic control apparatus is carried out in accordance with a situation of the riding type vehicle.